



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 1903.3-2015

**National food safety standards of food nutrition fortifier
5-adenosine monophosphate**

食品安全国家标准 食品营养强化剂 5' 单磷酸腺苷

(English Translation)

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1 Scope

This standard applies to food fortifier 5'-adenosine monophosphate.

2 Molecular formula, relative molecular mass and structural formula

Formula 2.1

C₁₀H₁₄N₅O₇P

2.3 Relative molecular mass

347.22 (according to 2007 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods Colorless to white color State crystal or crystalline powder
Take the right amount of sample is placed in a clean, dry white porcelain plate, observe its color under natural light and state

3.2 Physical and Chemical Indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method 5'-adenosine monophosphate (C₁₀H₁₄N₅O₇P) (dry basis), w / %
98.0 ~ 102.0 Appendix A A.3 Loss on drying, w / % ≤ 6.0 GB 5009.3a Heavy metals
(Pb)/(mg/kg) ≤ 10.0 GB 5009.74 Arsenic (As)/(mg/kg) ≤ 3.0 GB 5009.76 Absorbance

ratio A_1/A_2 0.82 ~ 0.88 A_3/A_2 0.19 ~ 0.23 Appendix A A.4 Other nucleic acid decomposition by test A.5 in Appendix A a drying temperature of 120 °C, drying time of 4h.

Appendix A

Testing method

A.1 General Provisions this standard reagents and water in the absence of other specified requirements, refer to the three water analytical reagent and GB/T 6682 regulations. Reagents Used in the standard solution, standard solution for measuring impurities, formulations and products, did not indicate when the other requirements according to GB/T 601, GB/T 602, the provisions of the preparation of GB/T 603's. Solution was used in the tests did not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test A.2.1 Weigh 0.01g sample was added 1000mL hydrochloric acid solution (1 -> 1000) was dissolved in a solution prepared, at a wavelength of 255nm ~ 259nm of maximum absorption band.

A.2.2 Weigh 0.25g sample is added 1mL of sodium hydroxide solution (40g/L), to prepare a solution (1 -> 20), of this solution 5mL, was added 2mL ammonium molybdate solution, should not produce precipitation, then add 7mL nitric acid, boil 10min, after adding phosphate test solution, when heated, a yellow the precipitate was coupled with sodium hydroxide solution (40g/L) or ammonia solution, the precipitate was dissolved.

A.3 5'-monophosphate ($C_{10}H_{14}N_5O_7P$) (dry basis) of the Determination A.3.1 Analysis step Weigh 0.2g sample, accurate to 0.0002g, add 1mL sodium hydroxide solution (40g/L), 200 mL water was added accurately, this accurately taken Solution 2mL, hydrochloric acid solution (1 -> 1000) and to accurately match into 200mL, as the test solution. Measured at a wavelength of 257nm at the detection of liquid Absorbance A.

A.3.2 Calculation Results 5'-adenosine monophosphate ($C_{10}H_{14}N_5O_7P$) (dry basis) of the mass fraction w_1 , according to equation (A.1) Calculated.

$$0.2 \times 2.315 \times A$$

$$m \times 100\%$$

Where.

0.2 --- conversion factor;

2.315 --- conversion factor;

A --- absorbance detection solution;

Quality, unit m --- converted to a dry basis after the sample in grams (g).

A.4 Determination of the absorbance ratio Weigh 0.010g sample, hydrochloric acid solution (1 -> 1000) dissolved and diluted to 1000mL, the solution was measured at a wavelength of

250nm, the absorbance at 260nm and 280nm respectively A1, A2 and A3, calculate the absorbance ratio A1/A2 and A3/A2.

Determination A.5 other nucleic acid decomposition products Weigh 0.10g sample, hydrochloric acid solution to dissolve and add water to make into a 20mL, as the test solution. Amount of test solution 1 μ L, without control Liquid, propanol - ammonia solution (ammonia solution 400mL of water to 1000mL) - acetone mixture (6.5.2) as a developing solvent, thinner Layer chromatographic analysis. Stop Expand Expand solvent former top line increased by about 10cm high, air-dried in the dark, UV light (wavelength about 250nm) observed, it should only be seen in one spot. Preparative thin layer plate. dried at 110 °C 1h, thin layer chromatography on silica gel (fluorescein Agent) as a carrier.